This listing of the claims replaces all prior listings and versions of the claims in this application.

Listing of the Claims

1. (Withdrawn) A method of delivering a biologically active molecule to a cell, comprising contacting the cell with a polyplex formed from an interaction between a biologically active molecule and a cellular delivery polymer, wherein the cellular delivery polymer is selected from the group consisting of polyhydroxylamidoamines, cyclodextrin-based dendritic macromolecules, 1,3-dipolar addition polymers, and carbohydrate-containing biodegradable polyesters.

2. (Canceled)

3. (Withdrawn) The method of claim 1, wherein the biologically active molecule is at least one nucleic acid molecule or at least one polypeptide or both.

4. (Canceled)

5. (Canceled)

6. (Withdrawn) The method of claim 3, wherein the biologically active molecule is a nucleic acid.

7. (Withdrawn) The method of claim 6, wherein the nucleic acid is an oligonucleotide.

8. (Withdrawn) The method of claim 7, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA: RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.

9. (Previously presented) A kit comprising at least one biologically active molecule and at least one cellular delivery polymer, wherein the cellular delivery polymer is selected from the group consisting of polyhydroxylamidoamine, cyclodextrin-based dendritic macromolecules, 1,3-dipolar addition polymers, and carbohydrate-containing biodegradable polyesters.

10. (Original) The kit of claim 9, wherein the biologically active molecule is a nucleic acid.

11. (Original) The kit of claim 10, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA: RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.

12. (Previously presented) A complex comprising a cellular delivery polymer and an agent that is desirably taken up by cells, wherein the cellular delivery polymer is selected from the group consisting of polyhydroxylamidoamines, cyclodextrin-based dendritic macromolecules, 1,3-dipolar addition polymers, and carbohydrate-containing biodegradable polyesters.

13. (Canceled)

14. (Previously presented) The complex of claim 12, wherein the agent that is desirably taken up by cells is at least one nucleic acid molecule or at least one polypeptide or both.

15. (Canceled)

16. (Previously presented) The complex of claim 14, wherein the agent that is desirably taken up by cells is a nucleic acid.

17. (Previously presented) The complex of claim 16, wherein the nucleic acid is an oligonucleotide.

18. (Original) The complex of claim 17, wherein the nucleic acid comprises from about 5 bases to about 200 kilobases.

19. (Original) The complex of claim 18, wherein the nucleic acid is selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA: RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.

20. (Original) The complex of claim 19, wherein the nucleic acid comprises one or more chemical modifications.

21. (Canceled)

22. (Original) A composition comprising the molecular complex of claim 12.

23. (Original) A cell comprising the molecular complex of claim 12.

24. (Original) A composition comprising the cell of claim 23.

25. (Original) A container comprising the molecular complex of claim 12.

26. (Original) A pharmaceutical composition comprising the molecular complex of claim 12 and a pharmaceutically acceptable excipient or carrier.

27. (Previously presented) The pharmaceutical composition of claim 26, wherein the agent that is desirably taken up by cells is at least one nucleic acid molecule or at least one polypeptide or both.

28. (Previously presented) The pharmaceutical composition of claim 27, wherein the agent that is desirably taken up by cells is at least one nucleic acid selected from the group consisting of mRNA, tmRNA, tRNA, rRNA, siRNA, shRNA, PNA, ssRNA, dsRNA, ssDNA, dsDNA, DNA: RNA hybrid molecules, plasmids, artificial chromosomes, gene therapy constructs, cDNA, PCR products, restriction fragments, ribozymes, antisense constructs, and combinations thereof.

29. (Previously presented) The pharmaceutical composition of claim 27, wherein the agent that is desirably taken up by cells is a polypeptide.

30. (Withdrawn) A method of treating an individual suffering from a disease or disorder, the method comprising contacting the individual with the complex of claim 12, the composition of claim 24, or the pharmaceutical composition of claim 26.

31. (Withdrawn) A method of providing gene therapy to an individual in need thereof, comprising contacting the individual, or cells therefrom, with the complex of claim 12, the composition of claim 24, or the pharmaceutical composition of claim 26.

32. (Canceled)

33. (Withdrawn) The method according to claim 1, wherein the poly(hydroxylamidoamine) comprises a poly(glycoamidoamine), a poly(L-tartaramidoamine), a poly(D-glucaramidoamine), a poly(galactaramidoamine), or a poly(D-mannaramidoamine).

34. (Withdrawn) The method according to claim 33, wherein the poly(glycoamidoamine) comprises a polymerization product of a diamine and a diester or dilactone carbohydrate derivative.

35. (Withdrawn) The method according to claim 33, wherein the poly(L-tartaramidoamine) comprises a polymerization product of an amine comonomer with dimethyl L-tartarate.

36. (Withdrawn) The method according to claim 35, wherein the poly(L-tartaramidoamine) comprises poly(L-tartaramidodiethyleneamine), poly(L-tartaramidotriethylenediamine), poly(L-tartaramidotetraethylenetriamine), or poly(L-tartaramidopentaethylenetetramine).

37. (Withdrawn) The method according to claim 33, wherein the poly(D-glucaramidoamine) comprises a polymerization product of an amine comonomer and esterfied D-glucaric acid.

38. (Withdrawn) The method according to claim 37, wherein the poly(D-glucaramidoamine) comprises poly(D-glucaramidodiethyleneamine), poly(D-glucaramidotriethylenediamine), or poly(D-glucaramidotetraethylenetriamine).

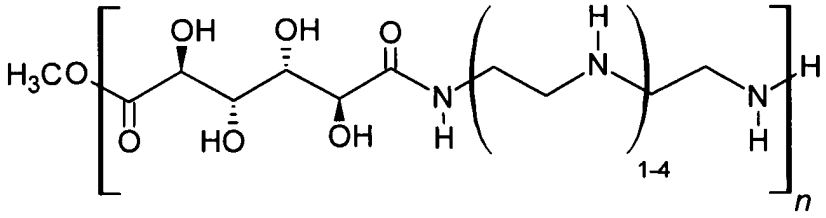
39. (Withdrawn) The method according to claim 33, wherein the poly(galactaramidoamine) comprises a polymerization product of a diamine comonomer with dimethyl-*meso*-galactarate.

40. (Withdrawn) The method according to claim 33, wherein the poly(galactaramindoamine) comprises poly(galactaramidodiethyleneamine), poly(galactaramidotriethylenediamine), poly(galactaramidotetraethylenetriamine), or poly(galactaramidopentaethylenetetramine).

41. (Withdrawn) The method according to claim 33, wherein the poly(D-mannaramidoamine) comprises a polymerization product of an amine comonomer with D-mannaro1,4:6,3-dilactone.

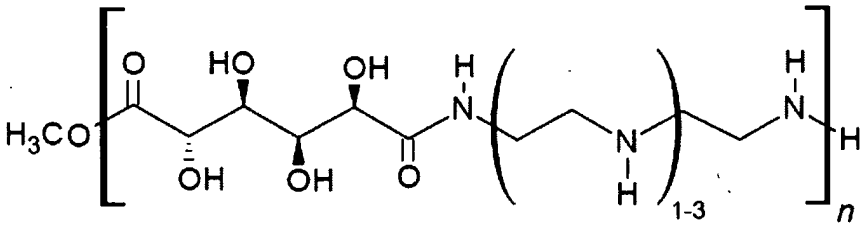
42. (Withdrawn) The method according to claim 33, wherein the poly(D-mannaramidoamine) comprises poly(D-mannaramidodiethyleneamine), poly(poly(D-mannaramidotriethylenediamine), poly(D-mannaramidotetraethylenetriamine), or poly(D-mannaramidopentaethylenetetramine).

43. (Withdrawn) The method according to claim 33, wherein the poly(D-mannaramidoamine) is depicted by the following structural formula:



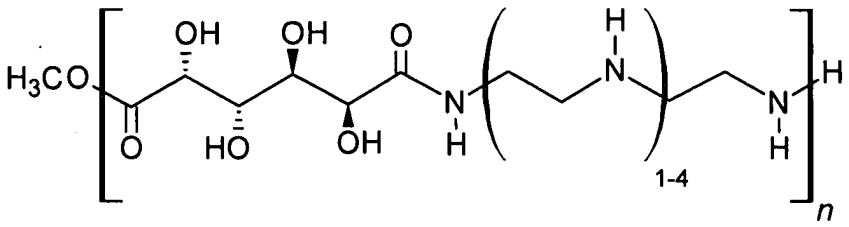
wherein *n* is an integer from 1 to infinity.

44. (Withdrawn) The method according to claim 33, wherein the poly(D-glucaramidoamine) is depicted by the following structural formula:



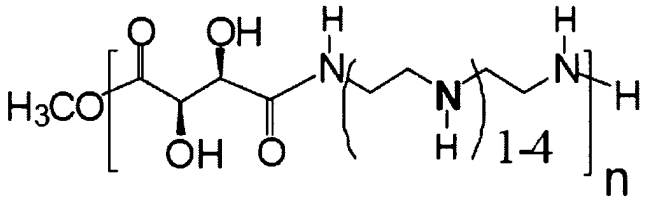
wherein *n* is an integer from 1 to infinity.

45. (Withdrawn) The method according to claim 33, wherein the poly(galactaramidoamine) is depicted by the following structural formula:



wherein *n* is an integer from 1 to infinity.

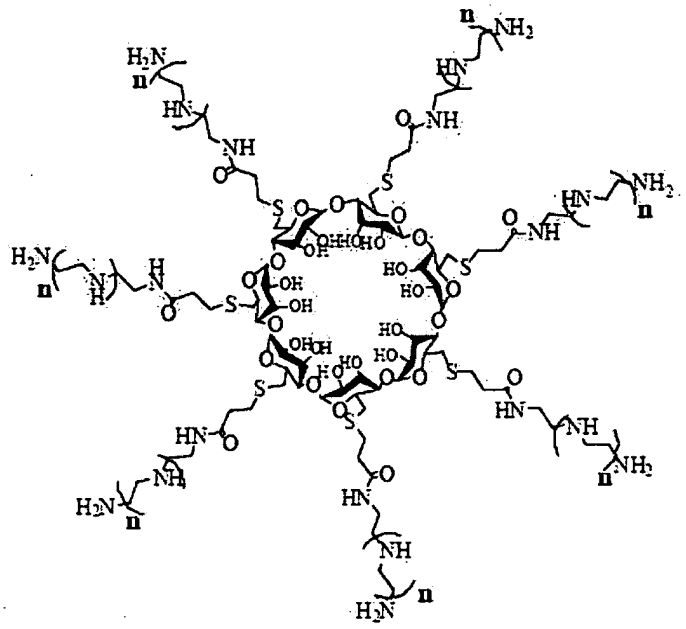
46. (Withdrawn) The method according to claim 33, wherein the poly(L-tartaramidoamine) is depicted by the following structural formula:



wherein *n* is an integer from 1 to infinity.

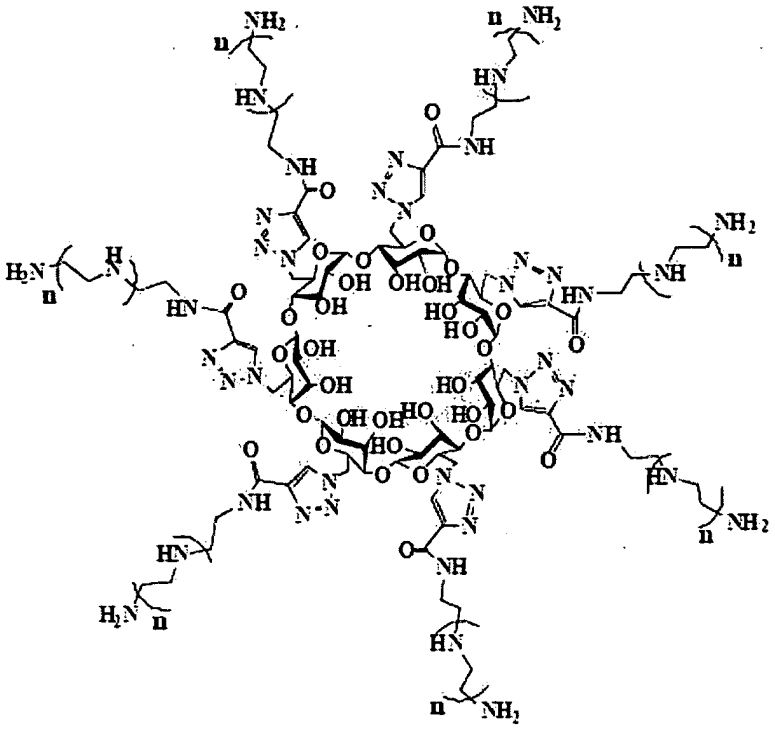
47. (Withdrawn) The method according to claim 1, wherein the cyclodextrin-based dendritic macromolecule comprises a dendrimer formed from a reaction between an appropriately substituted cyclodextrin and a polyamine, the dendrimer comprising a cyclodextrin core and an oligoamine shell comprising polyamine chains attached to the cyclodextrin core, wherein the cyclodextrin comprises alpha, beta or gamma cyclodextrin.

48. (Withdrawn) The method according to claim 47, wherein the dendritic macromolecule comprises cyclodextrin/thiol-diethylentriamine dendrimer of the following structural formula:



wherein *n* may be 1, 2, 3, or 4.

49. (Withdrawn) The method according to claim 48, wherein the dendritic macromolecule comprises a cyclodextrin-triazole dendrimer of the following structural formula:



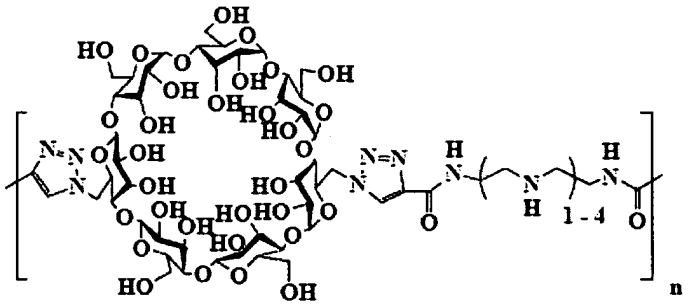
wherein *n* may be 1, 2, 3, or 4.

50. (Withdrawn) The method according to claim 49, wherein the triazole dendrimer is formed by click addition of an acetylated per-azido cyclodextrin and an alkyne dendron.

51. (Withdrawn) The method according to claim 1, wherein the 1,3-dipolar addition polymer is prepared by combining a carbohydrate diazide monomer with a dialkyne unit comprising oligamines.

52. (Withdrawn) The method according to claim 51, wherein the carbohydrate diazide comprises a cyclodextrin.

53. (Withdrawn) The method according to Claim 51, wherein the 1,3-dipolar addition polymer is depicted by the following structural formula:



wherein *n* is an integer from 1 to infinity.

54. (Withdrawn) The method according to claim 1, wherein the carbohydrate-containing biodegradable polyester comprises repeating carbohydrate molecules bound to oligoamine residues via an ester bond.

55. (Withdrawn) The method according to claim 1 wherein the poly(hydroxylamidoamine) is prepared by condensation of an appropriately substituted diester and an appropriately substituted diamine comonomer.